

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF VIRGINIA  
Richmond Division**

PORTO TECHNOLOGY CO., LTD., )  
*et al.*, )

Plaintiffs, )

v. )

Civil Action No. 3:13CV265–HEH

CELLCO PARTNERSHIP )  
d/b/a VERIZON WIRELESS, )

Defendant. )

**MEMORANDUM OPINION**  
**(Claim Construction)**

This is a patent infringement action filed by Porto Technology Co., Ltd., a Korean Corporation, Porto Technology, LLC, a Virginia Limited Liability Company having a principal place of business in Virginia (a wholly owned subsidiary of Porto Technology, Co., Ltd.), and Ji-Soo Lee, an individual and citizen of the Republic of Korea and the owner of the patent in suit (collectively “Porto”) against Defendant Cellco Partnership d/b/a Verizon Wireless (“Verizon”). The patent in suit, which has never been practiced, involves a navigation system for cellular telephones that provides directions and traffic information to users. The case is before the Court for construction of disputed claim terms. All parties have filed detailed memoranda of law in support of their respective positions, and the Court conducted a claim construction hearing on November 25, 2013. Upon careful consideration of the entire record, the Court’s construction of the disputed terms follows.

## I. BACKGROUND

There is one patent in suit: *United States Patent No. 6,233,518* (filed July 28, 1999<sup>1</sup>) (“the ‘518 Patent” or “the Patent”). Ji-Soo Lee is the owner of the ‘518 Patent, and Porto Technology Co., Ltd. is the exclusive licensee of the Patent. The ‘518 Patent is titled “Method and System for Providing Image Vector-Based Traffic Information,” and it relates to computer assisted mapping technologies applicable to a variety of consumer electronic devices, including Global Positioning System (“GPS”) navigation units and cellular telephones. Porto alleges that Verizon has been and is engaged in the manufacture, importation, offering for sale, and/or sale of consumer electronics, such as a user device for displaying image-based traffic information or a traffic information device capable of being coupled to a display panel, which for example, include Verizon VZ Navigator software pre-installed or available as a free download on certain Verizon cellular phones.<sup>2</sup>

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<sup>1</sup> The Patent application was filed in the United States on July 28, 1999, but the foreign priority application was filed on July 28, 1998.

<sup>2</sup> Specifically, Porto alleges in Count I that Verizon directly infringed the ‘518 Patent by selling phones with the Verizon VZ Navigator, which infringes the ‘518 Patent. In Count II, Porto alleges that Verizon indirectly infringed the ‘518 Patent by actively inducing the infringement by their respective customers, buyers, users, subscribers, and licensees who directly infringe the ‘518 Patent by performing the patented process in violation of 35 U.S.C. § 271(b). In Count III, Porto alleges Verizon indirectly infringes the ‘518 Patent by contributing, within the meaning of 35 U.S.C. § 271(c), to the direct infringement by Verizon customers, users, and subscribers by selling, offering for sale, and otherwise encouraging the use of the allegedly Infringing Products which perform each and every claimed limitation in one or more claims of the ‘518 Patent. Porto asks the Court to (1) decree that Verizon has been and is currently infringing, inducing others to infringe, and/or committing acts of contributory infringement with respect to the ‘518 Patent; (2) enter an order that Verizon be permanently enjoined from infringing, inducing others to infringe and/or committing acts of contributory infringement with respect to the ‘518 Patent; (3) award damages and interest on such damages to Porto, as well as treble the damages award to Porto

The parties contend that there are ten terms contained in the patent in suit that require construction by the Court.

## II. STAMENT OF THE LAW

Claim construction is a question of law for the Court to decide. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996). Generally, claim terms are given their “ordinary and customary meaning.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*) (internal quotations omitted). “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Id.* at 1313. Construing the disputed terms begins with a review of the intrinsic evidence, including the language of the disputed claim, the other claims, the specification, and the prosecution history. *Id.* See also *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005).

The specification has been characterized as the “single best guide to the meaning of a disputed term” and is usually “dispositive.” *Phillips*, 415 F.3d at 1315; see *United States v. Adams*, 383 U.S. 39, 49 (1966) (“It is fundamental that claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention.”). Thus, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Phillips*, 415 F.3d at 1316 (quoting *Renishaw PLC*

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pursuant to 35 U.S.C. §§ 284 and 271 (a), (b), and (c); and (4) award Porto their costs and attorneys’ fees incurred in this action pursuant to 35 U.S.C. § 285.

*v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998)). “A claim construction that excludes a preferred embodiment, moreover, ‘is rarely, if ever, correct.’” *Sandisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1285 (Fed. Cir. 2005) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996)).

Although considered less reliable than intrinsic evidence, extrinsic evidence, including dictionaries, learned treatises, and expert testimony, can help the court determine what a person of ordinary skill in the art would understand claim terms to mean, but it should not be used to support a construction that contradicts the intrinsic evidence. *Phillips*, 415 F.3d at 1317-19, 1322-23. If possible, claim terms should be construed in a manner that supports the patent’s validity against the prior art. *Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999).

### III. DISCUSSION

With the above principles in mind, the Court will now turn to the terms in dispute.

#### 1. “Image Vector Entity”

“Image Vector Entity” (“IVE”) is the central term at issue, and it is used many times throughout the Patent. (U.S. Patent No. 6,233,518, Col. 18, lines 39, 42, 49-50, 56; Col. 19, lines 8, 10, 18, 66; Col. 20, lines 2, 38, 43-44, 46, 50; Col. 21, lines 64-65; Col. 22, line 3; Col. 23, lines 19-21, 26.) Porto contends that an IVE is “a data structure representing an aspect of a [real entity]<sup>3</sup>.”<sup>4</sup> Verizon proposes the construction that an

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<sup>3</sup> The presence of brackets in the construction of terms at issue indicates terms the parties have either agreed upon a construction or the Court is determining its construction in this opinion.

<sup>4</sup> At the claim construction hearing, Porto offered to amend its construction to state that an IVE “includes one or more designating statements.” This amendment does not alter our analysis.

IVE is “a format of information representing an image to be displayed which includes a shape designating statement and a position designating statement used to draw the shape of a [real entity] at the specified position.”

Porto acknowledges the Patent discloses that a time-variant IVE includes an attribute-designating statement, a shape-designating statement, and a position-designating statement. However, Porto contends these descriptions of IVEs describe the *possible* – not mandatory – contents of an IVE. Whether the shape and position-designating statements are mandatory or permissible is at the heart of the construction of IVE.

In support of its construction, Porto (1) makes a claim differentiation argument, and (2) attempts to identify an instance in the Patent where a shape and position are not included in an IVE.

First, Porto cites independent claim 1, which requires “an attribute-designating statement of the time-variant image vector entity;” whereas dependent claim 4 specifies that the “time-variant image vector entity of the traffic state map includes the attribute-designating statement, an shape-designating statement and a position-designating statement.” (Col. 18, lines 41-42, 56-58.) Porto contends that under the doctrine of claim differentiation, claim 1 by definition has a broader scope because it is an independent claim and, thus, claim 1 and claim 4 are presumed to have different scopes. Porto argues that if the IVE of claim 1 were construed to include both a shape and position, the further limitations of dependent claim 4 would be swallowed by independent claim 1 – rendering claim 4 superfluous. Porto emphasizes that claims should not be construed to be superfluous. *Kara Tech, Inc. v. Stamps.com Inc.*, 582 F.3d 1341, 1347 (Fed. Cir. 2009)

(“[P]resence of a dependent claim that adds a particular limitation gives rise to the presumption that the limitation in question is not present in the independent claim.”).

Porto’s claim differentiation argument fails because for the reasons discussed *infra*, the Court’s plain reading of the intrinsic record and the Patent itself reveal that IVEs consistently contain positions and shapes. Indeed, “claim differentiation is a rule of thumb that does not trump the clear import of the specification.” *Eon-Net LP v. Flagstar Bancorp*, 653 F.3d 1314, 1323 (Fed. Cir. 2011). Further,

[p]resumptions are rebuttable. We have held that ‘[w]hile it is true that *dependent claims can aid in interpreting the scope of claims from which they depend, they are only an aid to interpretation and are not conclusive.*’ Indeed, the presumption created by the doctrine of claim differentiation is ‘not a hard and fast rule and will be overcome by a contrary construction dictated by the written description or prosecution history.’

*Regents of the Univ. of Cal. v. DakoCytomation Cal., Inc.*, 517 F.3d 1364, 1375 (Fed. Cir. 2008) (internal citation omitted) (emphasis added).

The lack of an alternative embodiment in the specification, i.e., an embodiment showing an IVE without a position and shape, is fatal to Porto’s claim differentiation argument. *E.g., Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1331 (Fed. Cir. 2009) (rejecting claim differentiation where “every embodiment described in the specification and shown in the drawings includes” a particular feature).

At the claim construction hearing, Porto attempted to locate an instance in the specification where an IVE was mentioned without a position and shape. Porto’s counsel and expert were unable to do so. Porto’s computer software engineering expert, Dr. George Edwards, acknowledged that an IVE needs a position, but opined that multiple

IVEs could share a shape and position, such that an IVE *may not always* need both a shape and a position. In support of that argument, he cited Figure 11E and Figures 6A – 6D of the Patent. These figures each represent multiple IVEs, the original of which Dr. Edwards opined has an associated shape and position and the subsequent ones which do not have a shape and position because the subsequent IVEs share those features with the original IVE. Accordingly, Dr. Edwards contended that to include the shape and position again in the subsequent IVE would be duplicative. Dr. Edwards also cited Col. 11, lines 9-12, which includes a description that refers to Figures 6A – 6D, and states: “Where any traffic accident occurs on a road included in the selected map, the converting processor generates a special image vector entity (which is *predetermined* as a traffic accident mark) disposed on the road.” (emphasis added). Dr. Edwards argued that the language “predetermined” reveals that the shape and position of that IVE have already been determined in an earlier IVE.

According to Dr. Edwards, when those circumstances occur, it would be redundant for *each* IVE to require a shape and position. Porto emphasizes that one of the advantages of this Patent is that it allows for more information to be conveyed with less data usage, and that to require a shape and position in every IVE would be a wasteful use of data. However, Porto and its expert could not identify a *single* instance where an IVE was mentioned in the Patent without a position and shape.

Porto’s argument and reliance on its expert’s strained opinion on this matter do not persuade this Court – especially given that the intrinsic evidence clearly and consistently shows that an IVE intrinsically has a position and a shape. To construe the term

otherwise would require the Court to ignore (1) the specifications of the Patent and (2) the vector encoding technology that is the basis of the Patent.

First, “when a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term ‘by implication.’” *Bell Atl. Network Servs. v. Covad Commc’ns Grp., Inc.*, 262 F.3d 1258, 1271 (Fed. Cir. 2001). Here, every single embodiment of the specification has shape and position information included with an IVE. As Verizon correctly notes in its brief, IVE is mentioned in the specification in Figures 6A, 6B, 6C, 6D, 7B, 8, 11B, 11C, 11E, and 16A and in the descriptions explaining those figures. (Def.’s Br. at 23 (ECF No. 56).) In every instance, IVE is associated with a position and shape which are used to draw the IVE. Verizon makes a reasonable estimate that the term IVE is mentioned in the specification over 75 times. Not a single one of those references states the shape and position are permissive.

Second, only through the inclusion of shape and position can the Patent function to perform its intended purpose of displaying IVEs as images representing maps that include traffic conditions. “The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Phillips*, 415 F.3d at 1316.<sup>5</sup>

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<sup>5</sup> The Court’s discussion of the operability of the Patent merely bolsters its construction of IVE, which is based on the plain and unambiguous uses of the term in the Patent’s claims. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 911 (Fed. Cir. 2004) (holding that if the Court determines that a claim is still ambiguous after all available tools of claim construction have been applied, it may consider constructing the claim such that it would preserve the patent’s validity).



Dr. William R. Michalson, professor of electrical and computer engineering at the Worcester Polytechnic Institute retained by Verizon as a technical expert, explained in his sworn declaration that if the shape and position are not included in the IVE and not used to draw the image, the invention would be inoperable to generate the sole embodiment (Figure 17) in the Patent which shows the display of images.<sup>6</sup> (Def.'s Br., Ex. 3, Michalson Decl. ¶ 22.) The only logical interpretation of the Patent is to construe IVE to include a position and shape so that IVEs, which are essentially lines, can be drawn on the screen of the user device and users can see traffic and directions displayed on a map.<sup>7</sup> Without any position or shape, IVEs would not exist and would not serve any

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<sup>6</sup> Generally, “extrinsic evidence . . . cannot be used to alter a claim construction dictated by a proper analysis of the intrinsic evidence.” *On-Line Tech v. Bodenseewerk Perkin-Elmer*, 386 F.3d 1133, 1139 (Fed. Cir. 2004). However, the Court may consider how extrinsic evidence bears on claim construction.

A judge is not usually a person conversant in the particular technical art involved and is not the hypothetical person skilled in the art to whom a patent is addressed. Extrinsic evidence, therefore, may be necessary to inform the court about the language in which the patent is written. But this evidence is not for the purpose of clarifying ambiguity in the claim terminology. It is not ambiguity in the document that creates the need for extrinsic evidence but rather *unfamiliarity of the court with the terminology of the art to which the patent is addressed*.

*Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 986 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996) (emphasis added).

<sup>7</sup> The title of the Patent, “Method and System for Providing an Image Vector-Based Traffic Information,” indicates this Patent is *based* on vector encoding technology. While this Court may not rely on the Patent’s title in its construction, the fact that the Patent is based on vector encoding bolsters this Court’s determination (based on the specification alone) that an IVE must contain a position and shape. See *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1312 (Fed. Cir. 1999) (“the purpose of the title [of a patent] is not to demarcate the precise boundaries of the claimed invention but rather to provide a useful reference tool for future classification purposes.”). Without a position and shape in an IVE, the Patent would not function in the manner the specifications clearly indicate. This Court discusses vector encoding in more detail *infra* in the analysis of claim 36.

purpose in this Patent. *See AstraZeneca LP v. Apotex Inc.*, 633 F.3d 1042, 1053 n.1 (Fed. Cir 2010) (quoting *Talbert Fuel Sys. Patents Co. v. Unocal Corp.*, 275 F.3d 1371, 1376 (Fed. Cir. 2002), *vacated and remanded on other grounds*, 537 U.S. 802 (2002)) (“[A] construction that renders the claimed invention inoperable should be viewed with extreme skepticism.”).

The Court therefore concludes that the ordinary and customary meaning of the claim term “Image Vector Entity” to a person of ordinary skill in the art at the time of the invention would be “a format of information representing an image to be displayed which includes a shape-designating statement used to draw the shape of a [real entity] at the specified position.”

2. “Text-Shape Image Vector Entity”

The term “Text-Shape Image Vector Entity” is used in claims 17 and 22 (Col. 19, lines 66-67; Col. 20, lines 43-44, 48-49.) Porto proposes the construction: “an [image vector entity] having a text element and a position data element.” Verizon contends the term means “an [image vector entity] to be drawn with a shape of text.”

The construction of Text-Shape IVE follows from the Court’s construction of IVE. Because the Court finds that an IVE includes a shape and position, there is no need to include those features in the construction of Text-Shape IVE, which by its own terms includes an IVE. To include a position in the construction as Porto proposes would be duplicative of IVE.

### 3. The Four “Designating Statements” Terms

The ‘518 Patent has four terms that describe a “designating statement.” An IVE can include any of these designating statements – an “attribute-designating statement,” “color designating statement,” “shape-designating statement,” and “position-designating statement.”<sup>8</sup> The four designating statement terms at issue are discussed as a whole.

Porto contends the designating statement terms are defined as “an element of an [image vector entity] representing an aspect/color/shape/or location of a [real entity]” – for example, a property, feature or characteristic. Verizon proposes the following construction: “an element of an [image vector entity] representing an aspect/color/shape/or location of a [real entity] *which is used to draw the [image vector entity]*.”<sup>9</sup>

Similar to Text-Shape IVE, the construction of the designating statement terms follow from the Court’s construction of IVE. Because IVE is construed to contain a shape-designating statement and position-designating statement “used to draw the shape of a [real entity] at the specified position,” the Court concludes that the designating statements must be used to draw IVEs. For the reasons described *supra*, if the designating statements were not used to draw IVEs, the user device would not display traffic and directions, and the Patent would be inoperable. *Phillips*, 415 F.3d at 1316.

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<sup>8</sup> “Attribute-designating statement” is used in claims 1, 2, 4, 7, 36, and 45. (Col. 18, lines 41, 49, 57; Col. 19, line 9; Col. 21, lines 64-65; Col. 23, lines 21-22.) “Color designating statement” is used in claims 2 and 3. (Col. 18, lines 50, 52-53.) The term “shape-designating statement” is used in claims 4 and 45. (Col. 18, lines 57-58; Col. 23, line 22.) “Position-designating statement” is used in claims 4 and 45. (Col. 18, line 58; Col. 23, line 23.)

<sup>9</sup> The italicized text represents Verizon’s addition to the construction of the designating statement terms. The parties construct these terms identically except where the text is italicized.

#### 4. “Basic Map”

The term “basic map” appears in claims 7, 20, 36, and 45 of the Patent. (Col. 19, lines 16, 23; Col. 20, lines 13, 17, 19, 21; Col. 22, line 2; Col. 23, lines 24-25.) Porto contends the term is defined as “one or more time-invariant [image vector entities].” Verizon argues the term does not require any construction, and should be given its plain and ordinary meaning.

While Verizon’s construction is reasonable, the Court adopts Porto’s construction because the basic map must be meaningfully distinguished from the other maps used in the Patent. Moreover, the Patent consistently describes a basic map as being composed of time invariant IVEs.<sup>10</sup> In addition, Porto’s construction appropriately contrasts with the parties’ agreed construction of “traffic state map” as “one or more time-variant [image vector entities] representing information related to traffic.” The difference between a “basic map” and a “traffic state map” is that a “basic map” is composed of time-invariant IVEs rather than time-variant IVEs. This distinction is logical because elements of the basic map, such as a mountain, river, or building do not vary with time, i.e., they are time-invariant, while elements of the traffic state map do vary with time, i.e., they are time-variant.

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<sup>10</sup> For example, Porto cites the following portions of the Patent’s embodiment: (1) “The basic map is composed of time-invariant image vector entities, each of which corresponds to a part or the entire of a real entity (e.g. a mountain, a river, a building and so on).” (Col. 7, lines 4-7); (2) “Each of the primary basic maps is composed of time-invariant image vector entities . . .” (Col. 7, lines 11-12); (3) “Each of the additive basic maps is composed of optional time-invariant image vector entities” (Col. 7, lines 19-20); and (4) “The separation AI from BM (even though both of them are substantially composed of time-invariant entities) . . .” (Col. 18, lines 11-12.)

5. “Traffic Information Map”

The term “traffic information map” appears in claims 7, 21, 36, and 45. (Col. 19, lines 19, 21; Col. 20, lines 26, 32-33; Col. 21, lines 60, 62; Col. 23, line 17). Porto constructs the term to mean “a [traffic state map] combined with a [basic map] and/or a header.” Verizon argues the term is defined as “traffic information which includes at least a traffic state map.”

The Court adopts Porto’s construction, which is common sense given that a traffic state map cannot logically be identical to a traffic information map. A traffic information map has to be a traffic state map *plus* something more. Porto’s argument that the traffic information map includes at least a traffic state map, a basic map, *and/or* header is supported by the specification’s consistent inclusion of these features with the traffic information map. *See* FIGs 12A-12F.

6. Claim 36

The phrases “means for *receiving* a traffic information map from a traffic information providing server via a network” and “means for *displaying* a first image in accordance with a basic map . . . and for *displaying* a second image in accordance with said traffic state map on said screen” appear in claim 36. (Col. 21, lines 60-61; col. 22, lines 1-5 (emphasis added.)) Porto argues the phrases should be given their plain and ordinary meaning except for the construed terms therein. Verizon contends that the claim is invalid as indefinite under a means-plus-function analysis.

Porto argues that claim construction is not the proper stage to consider the indefiniteness of claims. However, the law is clear that indefiniteness “is a matter of

construction of the claims.” *Wellman, Inc. v. Eastman Chemical Co.*, 642 F.3d 1355, 1365-66 (Fed Cir. 2011), *cert. denied*, 2012 WL 538344 (U.S. 2012). “A determination of claim indefiniteness is a legal conclusion that is drawn from the court’s performance of its duty as the construer of patent claims.” *Default Proof Credit Card Sys. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005). Accordingly, the Court considers the indefiniteness of claim 36.

The parties agree that claim 36<sup>11</sup> is a means-plus-function claim pursuant to 35 U.S.C. § 112 ¶ 6.<sup>12</sup> Claim construction of a means-plus-function limitation includes two steps: (1) “the court must determine the claimed function”; and (2) “the court must identify the corresponding structure in the written description of the patent that performs

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<sup>11</sup> The parties agree that we consider the whole claim in the means-plus-function analysis. Claim 36 is as follows:

A user device for displaying an image-based traffic information, comprising:

a screen;

means for receiving a traffic information map from a traffic information providing server via a network wherein said traffic information map includes at least a traffic state map composed of at least one time-variant image vector entity and an attribute designating statement of said time-variant image vector entity *is determined* in accordance with a traffic information related to corresponding real entity; and

means for displaying a first image in accordance with a basic map which is composed of a plurality of time-invariant image vector entities included in a specified region and for displaying a second image in accordance with said traffic state map on said screen, said second image being cumulatively displayed on the first image.

(Col. 21, line 57 – col. 22, line 6) (emphasis added).

<sup>12</sup> 35 U.S.C. 112 ¶ 6 states: “An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure . . . and such claim shall be construed to cover the corresponding structure . . . described in the specification and equivalents thereof.”

that function.” *Applied Medical Resources Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1332 (Fed. Cir. 2006).

With regard to the latter step, Verizon first argues that there is no corresponding structure linked to the claim. A structure is corresponding if the specification clearly links or associates that structure to the function recited in the claim. *Med. Instrumentation & Diagnostics Corp. v. Elekta*, 344 F.3d 1205 (Fed. Cir. 2003). Here, claim 36 plainly includes a “user device,” and the embodiment expressly states that “the user device includes a processor,” among other things and the “processor has a communication function at least.” (Col. 13, lines 1-5). Therefore there is a linked structure, specifically a processor.

Regarding the former step of means-plus-function analysis, the parties disagree as to whether an algorithm is necessary to perform the two functions at issue – receiving and displaying. Verizon argues that claim 36 is indefinite because of the failure to disclose an algorithm. Porto contends that no algorithm is needed because the functions can be performed by a general purpose computer. This issue comes down to whether receiving and displaying are specific functions that require special programming on a special purpose computer. If these functions can instead be performed with a general purpose computer, then no algorithm is necessary. As the parties agreed at the claim construction hearing, a general purpose computer is a legal construct. The task before this Court is to determine what a general purpose computer was in 1999 when the Patent was filed, and whether it could have performed the functions of receiving and displaying.

Porto bases its argument primarily on *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303 (Fed. Cir. 2011), where Katz owned patents on interactive call processing systems and call conferencing systems. The Federal Circuit concluded that,

Katz has not claimed a specific function performed by a special purpose computer, but has simply recited the claimed functions of ‘processing,’ ‘receiving,’ and ‘storing.’ Absent a possible narrower construction of [these] terms . . . those functions can be achieved by any general purpose computer without special programming. As such, it was not necessary to disclose more structure than the general purpose processor that performs those functions.

*Id.* at 1316. Porto argues that like in *In re Katz Interactive Call Processing Patent Litigation*, no algorithm is needed because no decision-making steps occur in claim 36.

However, the Federal Circuit later explained that “*In re Katz Interactive Call Processing Patent Litigation* identified a *narrow exception* to the requirement that an algorithm must be disclosed for a general-purpose computer to satisfy the disclosure requirement: when the function ‘can be achieved by any general purpose computer without special programming.’” *Ergo Licensing, LLC v. CareFusion 303, Inc.*, 673 F.3d 1361, 1364-1365 (Fed. Cir. 2012) (quoting *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d at 1316) (emphasis added). The Federal Circuit further explained that “[i]t is only in the *rare circumstance* where any general-purpose computer without any special programming can perform the function that an algorithm need not be disclosed.” *Id.* at 1365 (emphasis added); *see also Aristocrat Technologies, Inc. v. Int’l GameTech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008).



The Court agrees with Verizon that this rare exception does not apply here, and an algorithm is needed because the acts of receiving and displaying are beyond the capability of a general purpose computer and require a special processor.<sup>13</sup> The receiving of claim 36 is not just receiving, but is receiving a traffic information map from a traffic information providing server via a network. (Col. 21, lines 60-61.) Thus, the information received is routed from a specific place and through a specific route. In addition, the act of displaying and transforming the data in this Patent is critical. The mere act of displaying is insignificant if it is not done “in accordance with” certain features, as discussed *infra*. Simply put, the function of the data affects the result, and such processing is far outside the parameters of the narrow exception of *In re Katz Interactive Call Processing Patent Litigation*. Accordingly, the acts of receiving and displaying require a specific processor<sup>14</sup> and an algorithm should have been disclosed.

Moreover, it is consistent with the technology of the Patent – which is based on vector encoding<sup>15</sup> – to conclude that an algorithm is necessary in the processes of

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<sup>13</sup> Porto’s expert even acknowledged at the claim construction hearing that multiple algorithms could be used.

<sup>14</sup> At the claim construction hearing, Porto argued that while claim 36 does involve receiving and displaying information, rendering is not necessarily part of displaying. The Court finds that although the term “rendering” is not included in the Patent, claim 36 makes clear that there is a higher level of sophistication behind “receiving” and “displaying” as described by the language of the claim.

<sup>15</sup> “Vehicle Location And Navigation Systems,” a textbook published just two years before the ‘518 Patent was filed provides a useful description of the state of the art at that time. It provides an overview of vector encoding, which:

. . . is the representation of road network features using Cartesian geometry. A feature is denoted as an existing or planned item in the real world. Features are modeled by associating each feature with one or more primitives: points, lines,

receiving and displaying. For example, the transmission of data instructing the device to display certain images based on that data is first received before it is used to create and ultimately display images on the screen of the user device.<sup>16</sup> Without an algorithm to convert or process the data that is received, the device would not know what content to display on the screen.

Because claim 36 does not disclose an algorithm, the Court finds it is invalid as indefinite.<sup>17</sup>

7. “Displaying an Image In Accordance With...”

The phrase “displaying an image in accordance with . . .” appears in multiple phrases, which are found in claims 1, 7, 17, 22, 36, and 45. These phrases include (1) “displaying an image in accordance with the traffic state map on a screen of the user device,” (2) “displaying a first image in accordance with said basic map on a screen,” (3)

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areas. . . . The encoding is done in such a way that processing of the information may be automated using computers.

. . . Digital cartographic information is geographic information that has been encoded in digital form. In other words, it is data digitized from existing maps or aerial photographs based on the primitives discussed earlier . . . The attributes might include types of roads, street names, address ranges, expected driving speeds, connectedness, signs and signals, turn restrictions, points of interest, etc.

(Def.’s Br., Ex. 4 (YILIN ZHAO, VEHICLE LOCATION AND NAVIGATION SYSTEMS 18 (1997))).

<sup>16</sup> At the claim construction hearing, Porto’s expert, Dr. Edwards, maintained that rendering (which might also be called the conversion of the data received into the data displayed) is not necessarily done at the displaying stage. While the term rendering is not expressly used in the Patent, it is clear from claim 36 that the data is processed once it is received so that it can ultimately be displayed in a manner consistent with any particular attributes of the IVE.

<sup>17</sup> The parties argued on brief over whether claim 36 is also invalid as indefinite because there is an improper mixing of apparatus and method. The Court does not reach this issue as it concludes that claim 36 is invalid as indefinite under the means-plus-function analysis.

“displaying a first image in accordance with said plurality of time-invariant image vector entities on a screen of the user device,” (4) “displaying a second image in accordance with said traffic state map, said second image being cumulatively displayed on the first image,” (5) “displaying a third image in accordance with said text-shape image vector entity on the screen of the user device,” and (6) “displaying a second image in accordance with said text-shape image vector entity on the screen of the user device, said second image being displayed cumulatively on the first image.” (Col. 18, line 46; col. 19, lines 23, 25; col. 20, lines 1, 46, 49; col. 22, lines 1, 4, 5; col. 23, line 24.)

Porto contends that all of these phrases should be given their plain and ordinary meaning except for the construed terms therein. Verizon proposes the following construction: “the user device displays the [image vector entity] at the position corresponding to the [real entity].”

The construction of these phrases distills down to whether the display of an image for a particular IVE *must* occur at a position on a map corresponding to the location of the real entity. The Court adopts Porto’s construction because the Court has already constructed IVE to include, in pertinent part, “a position designating statement used to draw the shape of a [real entity] at the specified position.” To require a position corresponding to a location in the construction of these phrases would be duplicative of the IVE construction. In addition, Verizon’s construction essentially removes “in accordance with” from these phrases and replaces it with “necessarily displays” – which is of course not the language used in the Patent. Further, but for the construed terms contained within these phrases, the disputed phrases are formed from ordinary words that

have ordinary meaning. Accordingly, each of these six phrases will be afforded their ordinary meanings.

#### **IV. CONCLUSION**

For the reasons stated above, the disputed terms are construed as follows:

1. “Image Vector Entity” is “a format of information representing an image to be displayed which includes a shape designating statement and a position designating statement used to draw the shape of a [real entity] at the specified position.”

2. “Text-Shape Image Vector Entity” is “an [image vector entity] to be drawn with a shape of text.”

3. The four “Designating Statements” terms, including those pertaining to attribute, color, shape, and position are each construed as “an element of an [image vector entity] representing an aspect/color/shape/position of a [real entity] which is used to draw the [image vector entity].”

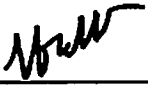
4. “Basic map” is “one or more time-invariant [image vector entities].”

5. “Traffic information map” is “a [traffic state map] combined with a [basic map] and/or a header.”

6. Claim 36 is invalid as indefinite.

7. The “displaying an image in accordance with” terms are given their plain meaning and in light of the construction of “Image Vector Entity.”

An appropriate Order will accompany this Memorandum Opinion.

 /s/ \_\_\_\_\_  
Henry E. Hudson  
United States District Judge

Date: Dec. 13, 2013  
Richmond, Virginia